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"BENEATH THE TIP OF THE ICEBERG": THE MULTIPLE FORMS OF UNIVERSITY-INDUSTRY COLLABORATIVE LINKAGES

Irene Ramos-Vielba and **Manuel Fernández-Esquinas**
Institute for Advanced Social Studies, CSIC
Córdoba, Spain
iramos@iesa.csic.es ; mfernandez@iesa.csic.es

Abstract

Third mission activities in universities are currently an issue of growing importance in the agenda of university strategies and R&D policy initiatives (Martin et al., 1996; Etzkowitz et al., 2000). However, both policymakers and scholars devoted to the study of third mission activities normally place the emphasis on what are considered the core activities involved in the transfer of technology from universities to industry at large i.e., the generation of patents and the creation of spin-off firms stemming from research projects, that is, those collaborative activities related with the exploitation of intellectual property rights (IPR).

This emphasis is built on an assumption about the environment of what constitutes an average university that is not supported by empirical evidence. On the one hand, only a minority of universities have the capacity to engage in patenting activities and the creation of spin-offs (Owen-Smith, 2003). On the other, the productive environments of a considerable proportion of universities are constituted by firms that have little absorptive capacity for R&D innovation given their limited size and the relatively low technological content of their productive processes (Laursen and Salter, 2004). As a result, an increasing number of scholars are pointing to the need for further research on the variety of different types of collaborative links that exist between firms and universities (D'Este and Patel, 2007).

In the light of these considerations, we propose the following research question: What are the main forms of university-industry relationship that can be found in a regional university system? Our paper focuses on the wide variety of channels through which the process of knowledge transfer between university and industry occurs. We assume that the usual accounts of technology transfer offices do not provide an accurate picture of the current relationships. Given that many of these collaborative activities are carried out by researchers in an independent manner, it is necessary to look carefully at them from the bottom level of a university structure: the research teams. Our methodological strategy is to use the research teams of a university system as a unit of analysis, and to identify multiple forms of university-industry linkages and the main trends that emerge in those interactions with industry.

We present a case study based on an ongoing project aimed at studying the collaborative activities between universities and firms in Andalusia, a region of Southern Spain

traditionally characterized by its weak industrial fabric and an emerging yet detached university system that is representative of a considerable number of European regions (Garlic, 1998; Howells et al., 1998). In the framework of this project, we have carried out a face-to-face survey of 765 heads of research teams located in the region, aimed at creating an exhaustive indicator set that includes collaborative R&D activities that often go unreported in most studies.

The first step of the analysis consisted in mapping the participation of research teams in a wide range of collaborative activities. In a second step, we tried to reduce the original indicator set using a factor analysis to identify correlations and underlying dimensions. This was followed by a conglomerate analysis to detect homogeneous clusters of research teams. The research teams were classified according to the types of transfer activities they carry out. The final step consisted in assigning meaning to those conglomerates by identifying the main characteristics of the research teams in each resultant cluster. For this purpose our study takes into account three groups of factors referring to some characteristics of the research teams, their forms of work and their leaders' profiles.

Drawing on the exploitation of this data set, we argue that for a majority of universities the thrust of their collaborative experiences is devoted to consulting work, commissioned or joint research projects, and human resources training. Research teams also participate in non-academic knowledge dissemination and informal networking. The results of our study allow us to draw some policy implications for university administrators and policymakers: A focus on patents and spin-offs as indicators of the success of collaborative research ignores the limits of many of the economic and productive contexts in which universities are embedded. It may also be detrimental to the strengthening of emerging trends that are oriented towards softer collaborative experiences and other forms of knowledge transfer between universities and firms.